

The Nature
Conservancy



Protecting nature. Preserving life.®



Coastal
Conservancy

Conserving California's Coastal Habitats: *A Legacy and a Future with Sea Level Rise*



Given sea level rise
and existing land cover and management
is no net loss possible?



Conserving California's coastal habitats in the face of sea level rise

1. Characterize the coast of today

study area extends 5 miles inland from SLR

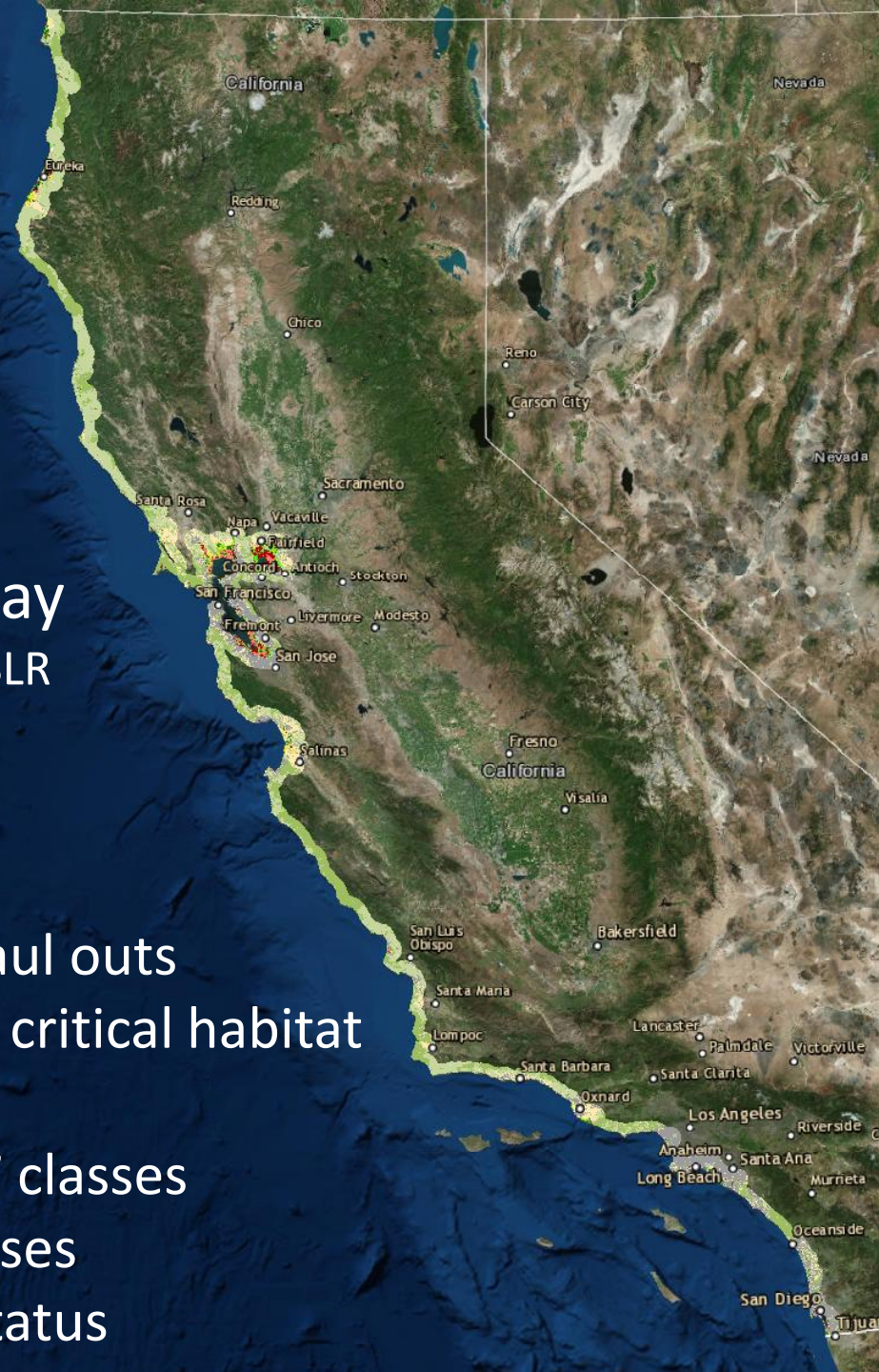
Biodiversity

- 40 habitat types
- 159 imperiled species
- 3 marine mammal – haul outs
- 3 shorebird – nesting / critical habitat

Land use

- Built environment – 17 classes
 - Agriculture – 3 classes

Conservation management status



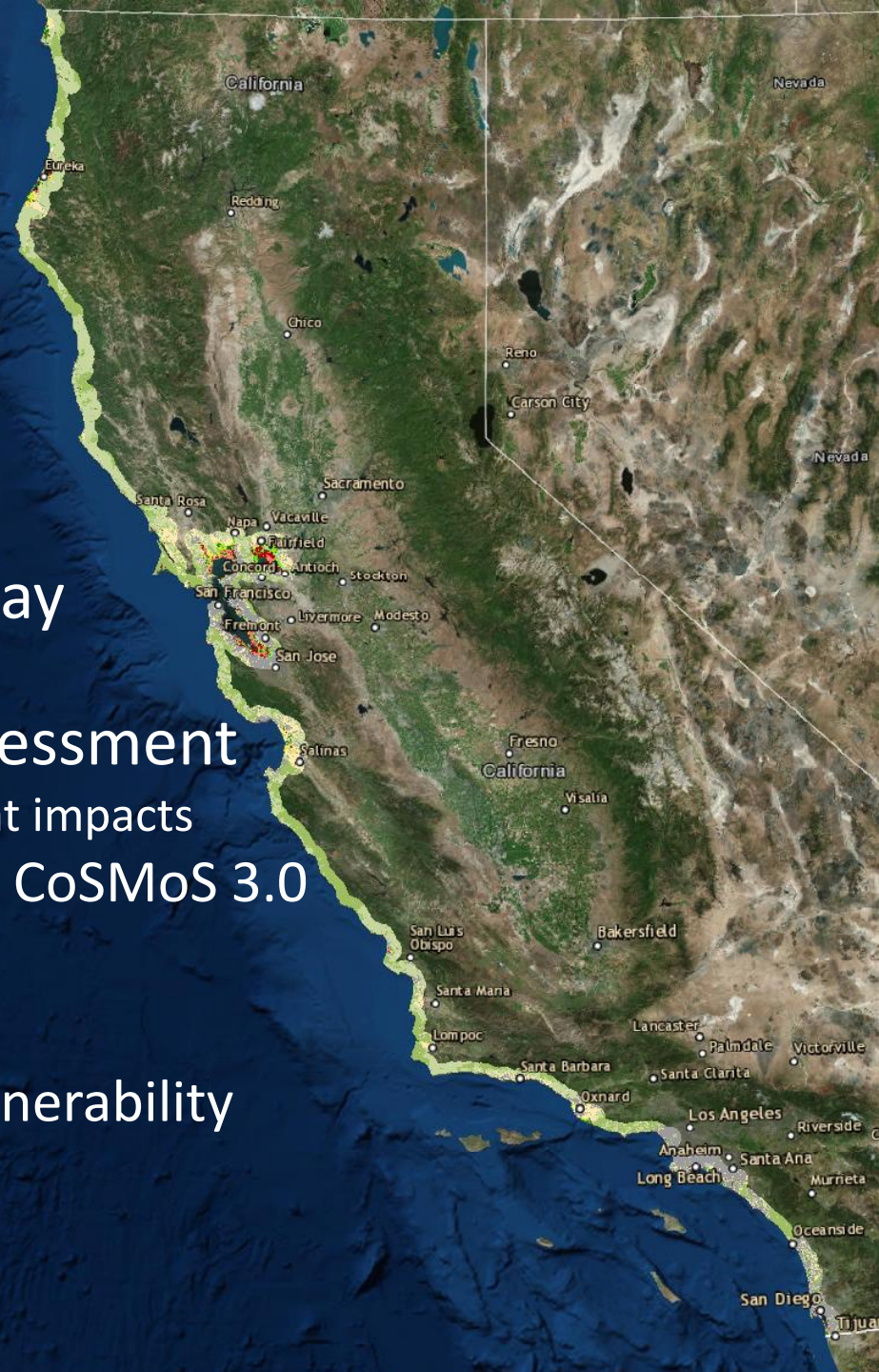
Conserving California's coastal habitats in the face of sea level rise

1.Characterize the coast of today

2.SLR Habitat Vulnerability Assessment

analytic zone—tidal and terrestrial habitat impacts

- NOAA SLR data – Re-run with CoSMoS 3.0 for LA County only
- 2ft and 5ft SLR
- Quantify and map habitat vulnerability



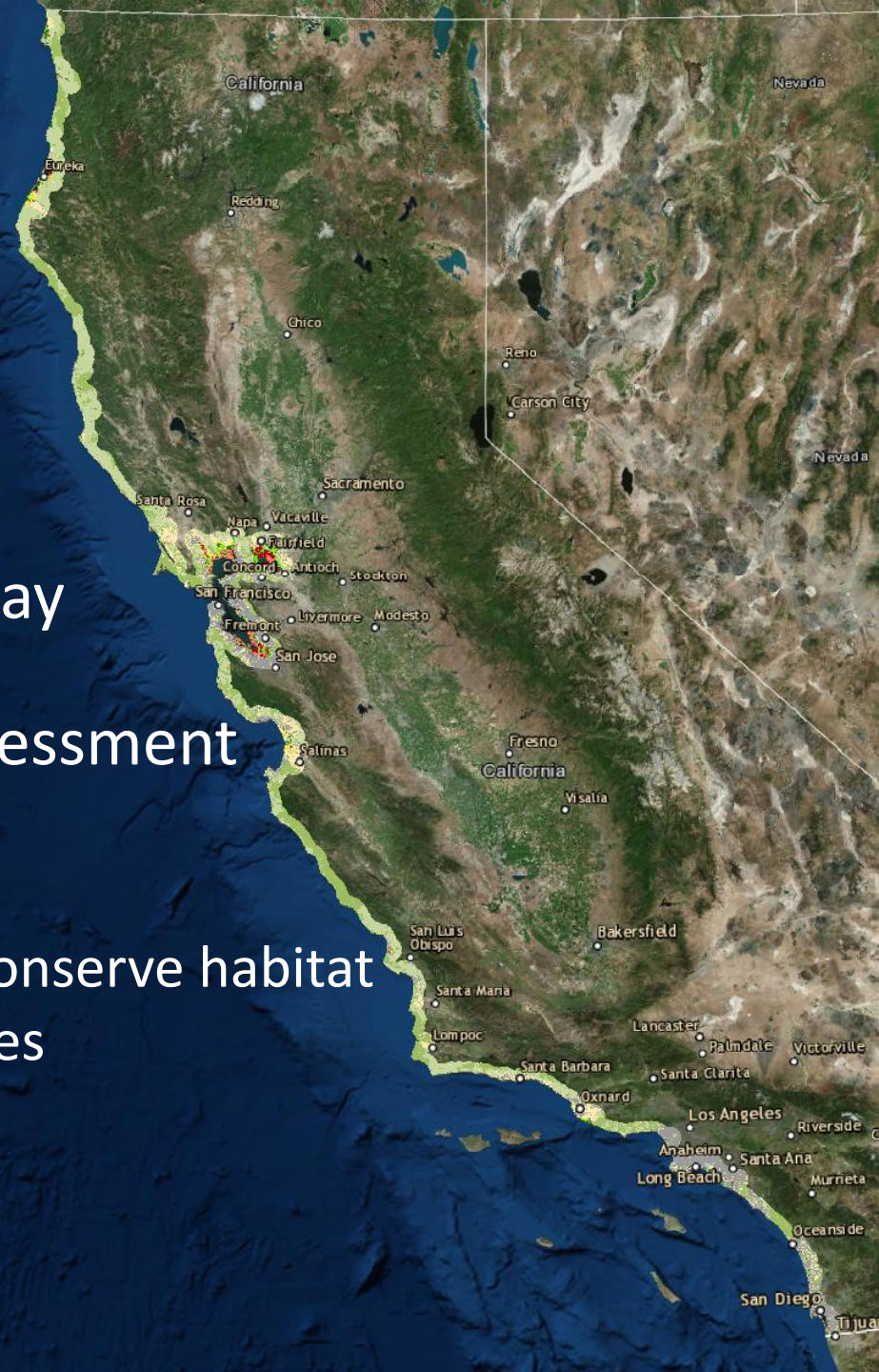
Conserving California's coastal habitats in the face of sea level rise

1.Characterize the coast of today

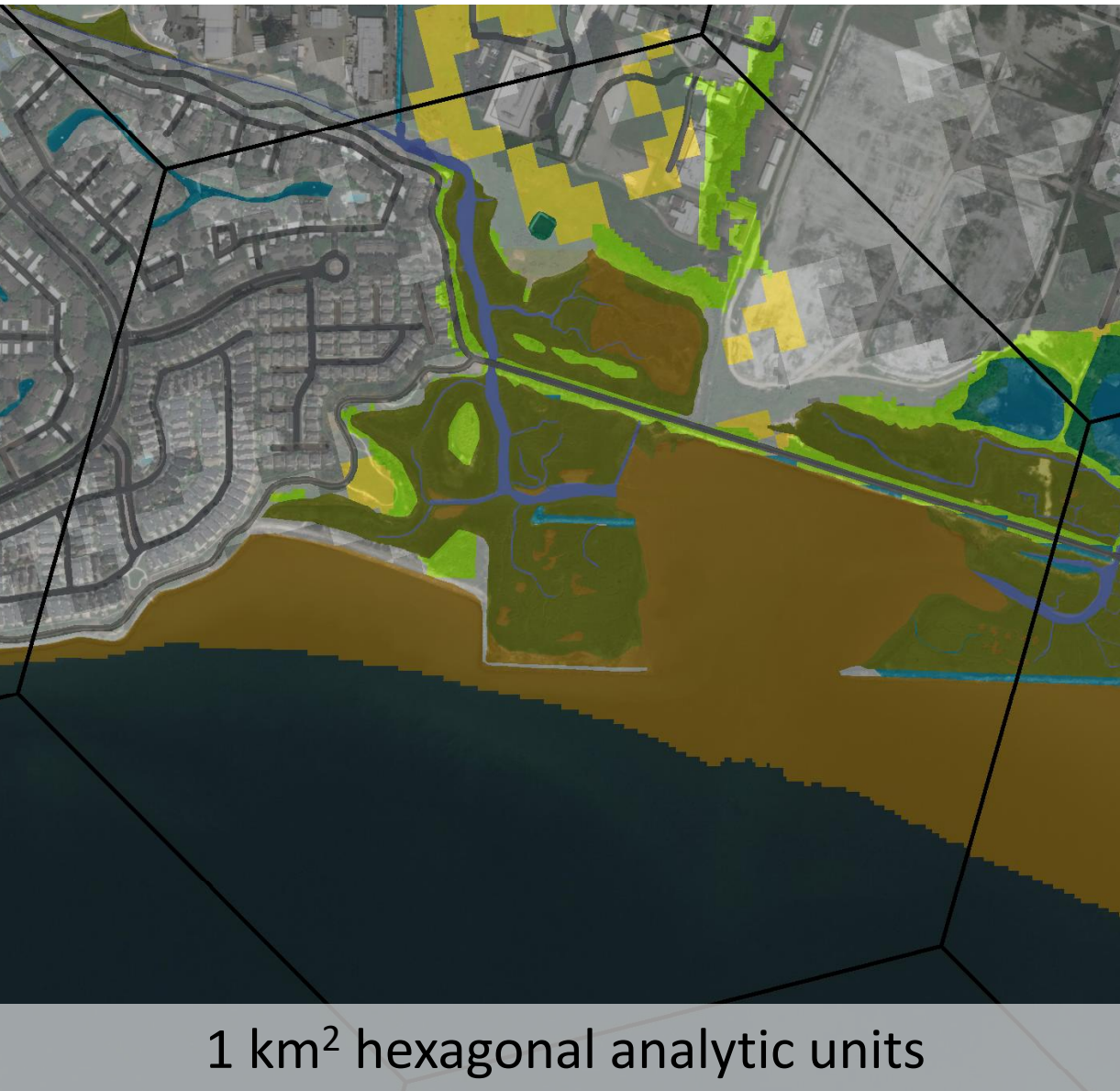
2.SLR Habitat Vulnerability Assessment

3.Direct conservation:

- Identified 5 strategies to conserve habitat
- Quantify and map strategies
- Statewide prioritization
- With local detail



High resolution site level spatial data e.g. El Cerrito



Habitat



- Annual Grassland
- Freshwater Marsh
- Lakes / Ponds
- Irregularly-flooded Estuarine Marsh
- Regularly-flooded Estuarine Marsh
- Tidal Channel
- Tidal Flat and Salt Panne

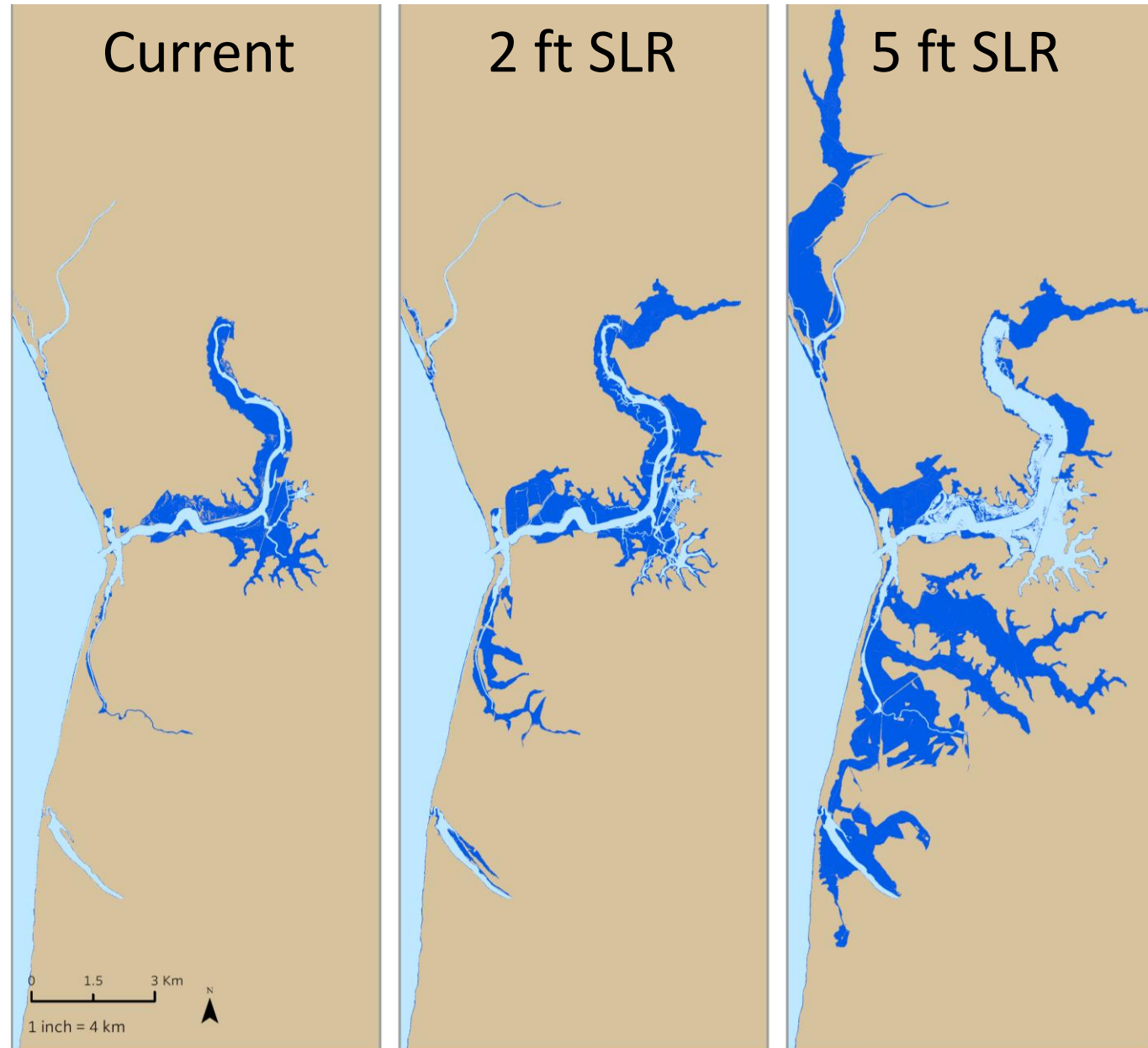
Built Environment Groups

- Transportation infrastructure
- Developed - high intensity
- Developed - medium intensity
- Developed - low intensity
- Other infrastructure
- Undeveloped uplands

Coastal Analytic Units

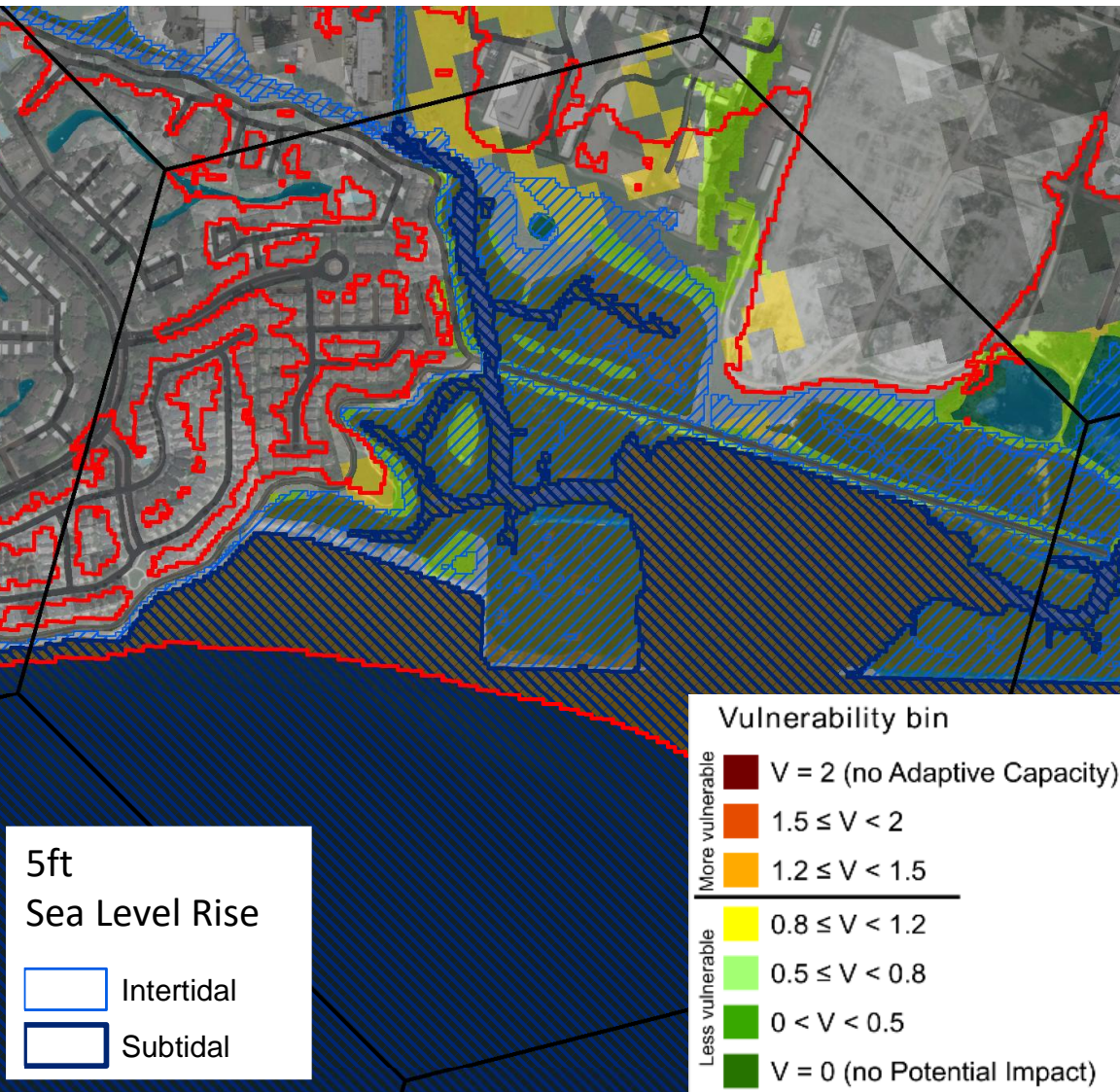
Characterize sea level rise into subtidal and intertidal exposure

 Intertidal
 Subtidal
NOAA SLR data



$$\text{Vulnerability} = \frac{\text{Potential Impact}}{\text{Adaptive Capacity}}$$

Habitat (Exposure * Sensitivity) (room for Transgression)



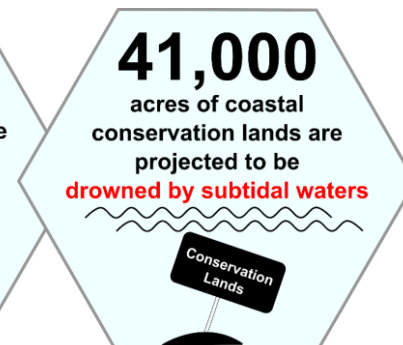
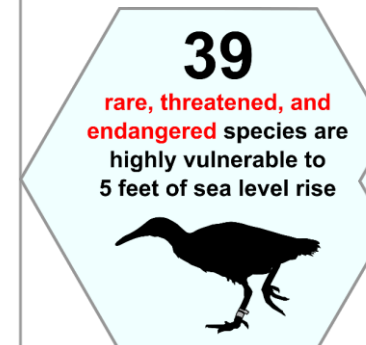
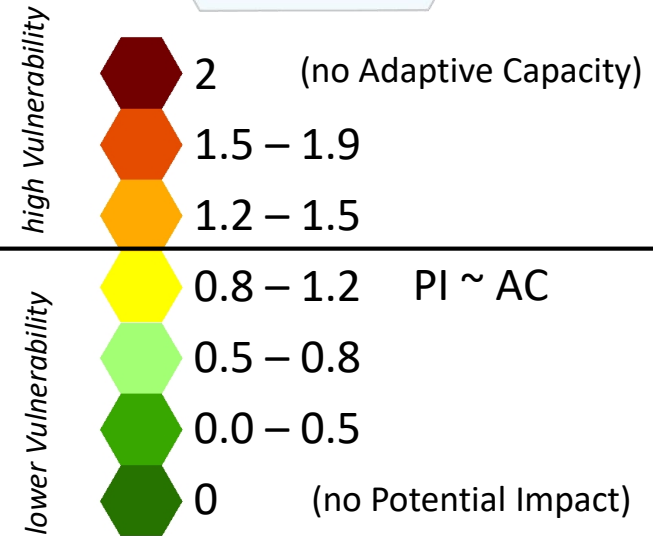
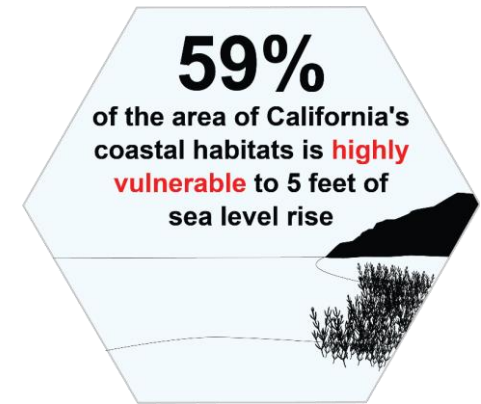
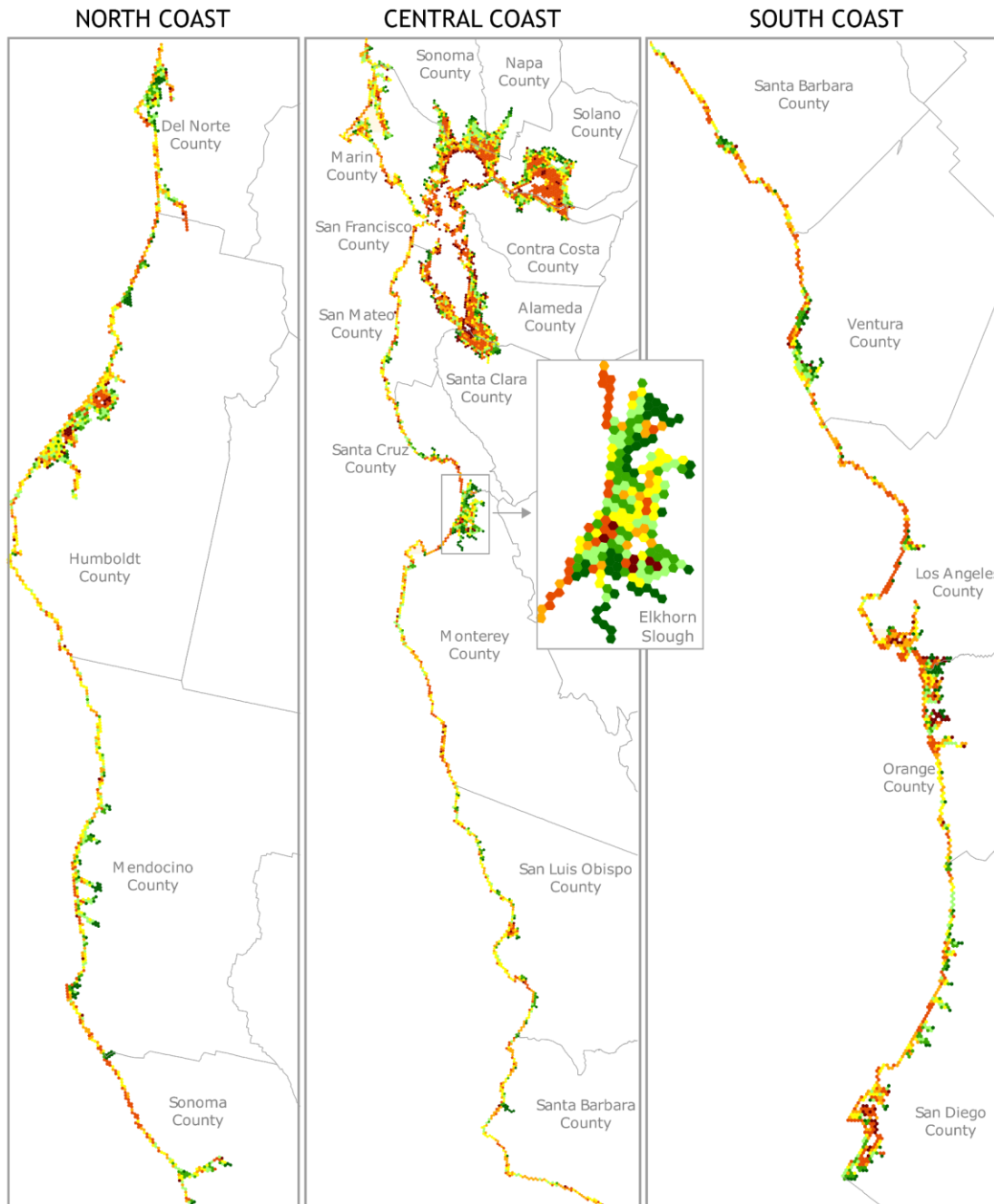
Habitat

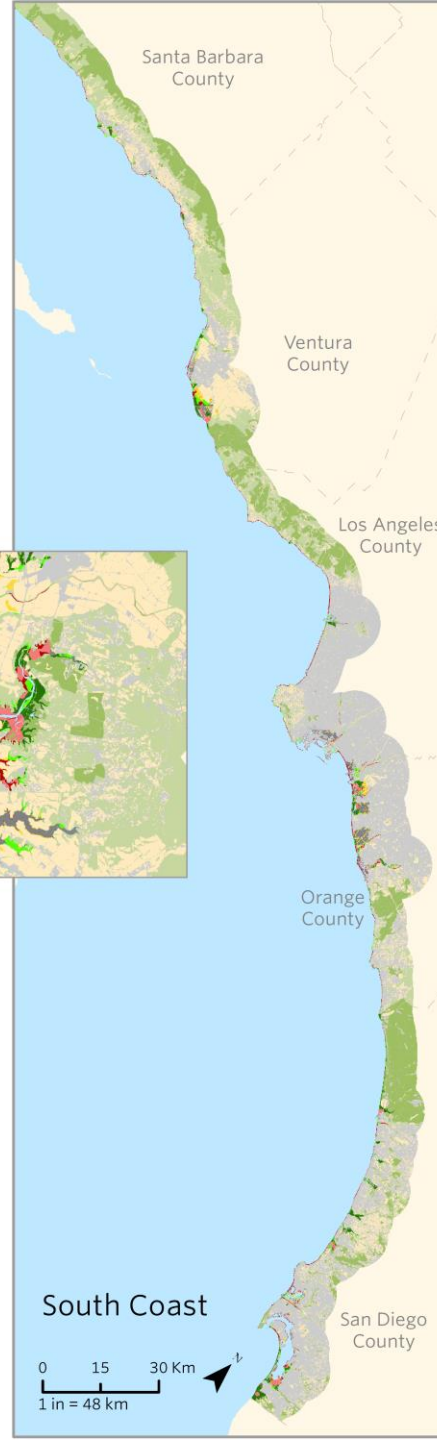
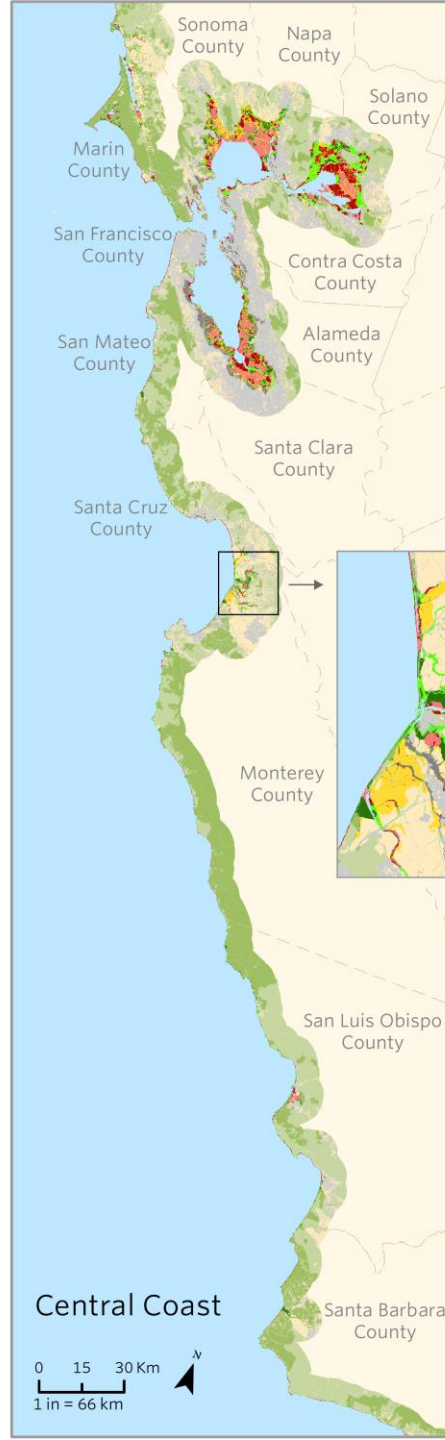
Annual Grassland	V = 0.3
Freshwater Marsh	V = 0.1
Lakes / Ponds	V = 0.5
Irregularly-flooded Estuarine Marsh	V = 1.0
Regularly-flooded Estuarine Marsh	V = 0.7
Tidal Channel	V = 0.1
Tidal Flat and Salt Panne	V = 1.1

$$V_{\text{index}} = 0.8$$

- Coastal Analytic Units
- Analytic Zone (R5)

VULNERABILITY INDEX, 5 ft SEA LEVEL RISE



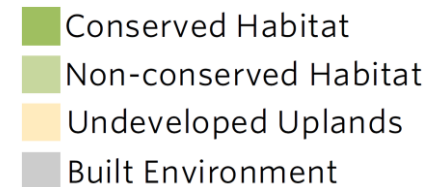


Conserve and Manage for Resilience

- Resilient Conserved Habitat**
Maintain the resilience and conservation status of existing conservation land.
- Resilient Non-conserved Habitat**
Invest in conserving resilient landscapes.
- Vulnerable Conserved Habitat**
Manage in place for resilience to help habitat keep pace with sea level rise.

Mitigate Potential Losses of Vulnerable Habitats

- Vulnerable Non-conserved Habitat**
Mitigate potential losses by adapting adjacent built environment and/or investing in potential future habitat.
- Potential Future Habitat**
Invest in conservation and management that allows vulnerable habitat to transgress inland.
- Exposed Built Environment**
Adapt the built environment to enhance habitat area and function.



Hope for the Coast: A Vision for California's Coastal Future

We will maintain and enhance California's coast in the face of sea level rise, other climate change-induced challenges, and development. By working collectively and guided by science, we will ensure the coast is protected for future generations to enjoy, replete with as much or more habitat and wildlife, as well as social, economic, and recreational benefits, as we have today.

A Growing California Coalition

State Agencies

Ocean Protection Council
California Coastal Commission
State Lands Commission
State Coastal Conservancy

Local Governments

County of San Mateo
County of Ventura
County of Santa Barbara
County of Los Angeles
City of Goleta
City of Oxnard

Federal Partners

National Estuarine Research
Reserves (San Francisco Bay,
Elkhorn Slough & Tijuana River)

Regional Organizations

Beach Erosion Authority for
Clean Oceans Nourishment
(BEACON)
San Diego Regional Climate
Collaborative
Central Coast Climate
Collaborative

Other Supporters

Los Angeles County Supervisor
Sheila Kuehl
City of Imperial Beach Mayor Serge
Dedina
City of Oxnard Mayor Pro Tem
Carmen Ramirez

HOPE for the COAST

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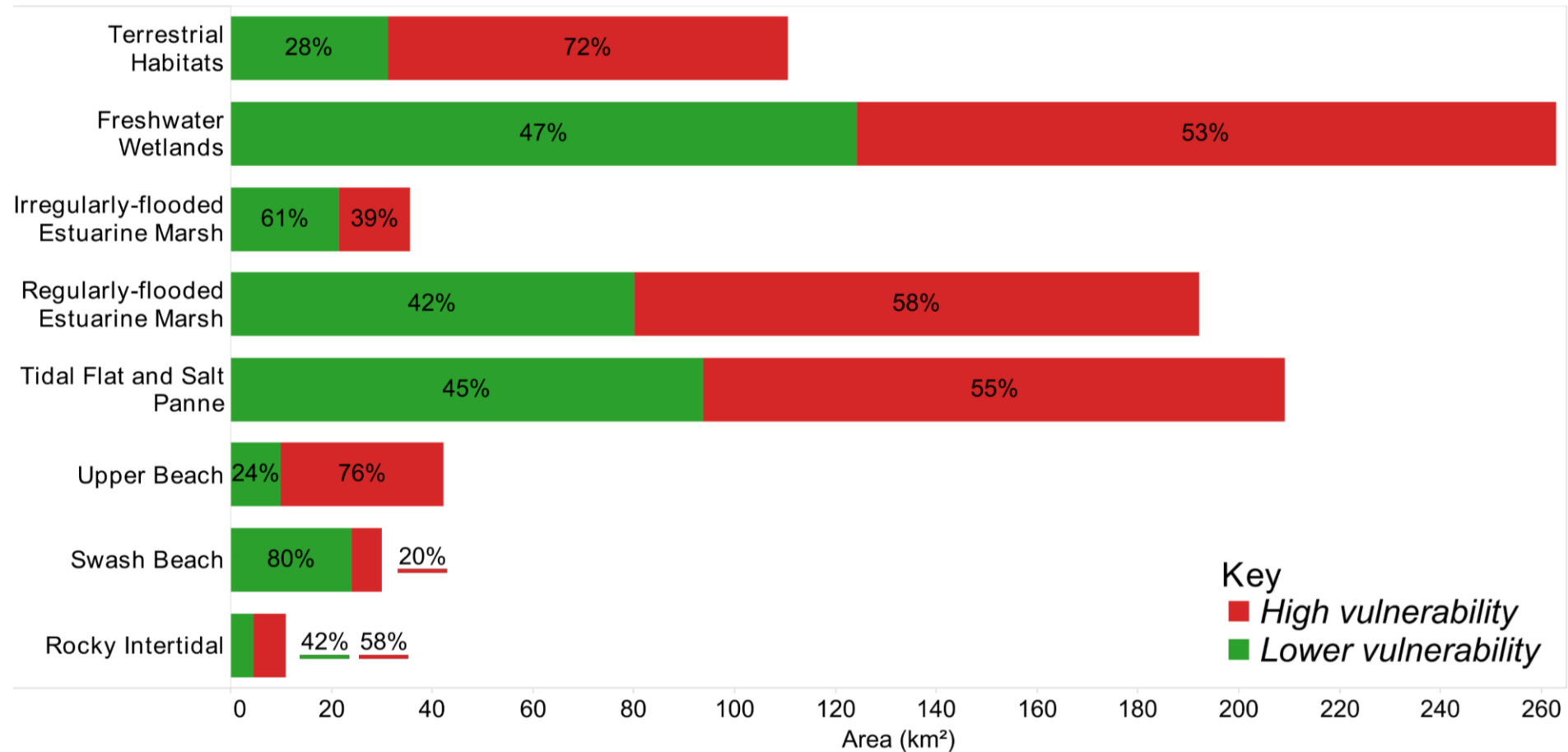
wheady@tnc.org

<http://coastalresilience.org/CoastalAssessment>

<https://coastalresilience.org/project/california/>

Extra Slides

Statewide Habitat Vulnerability

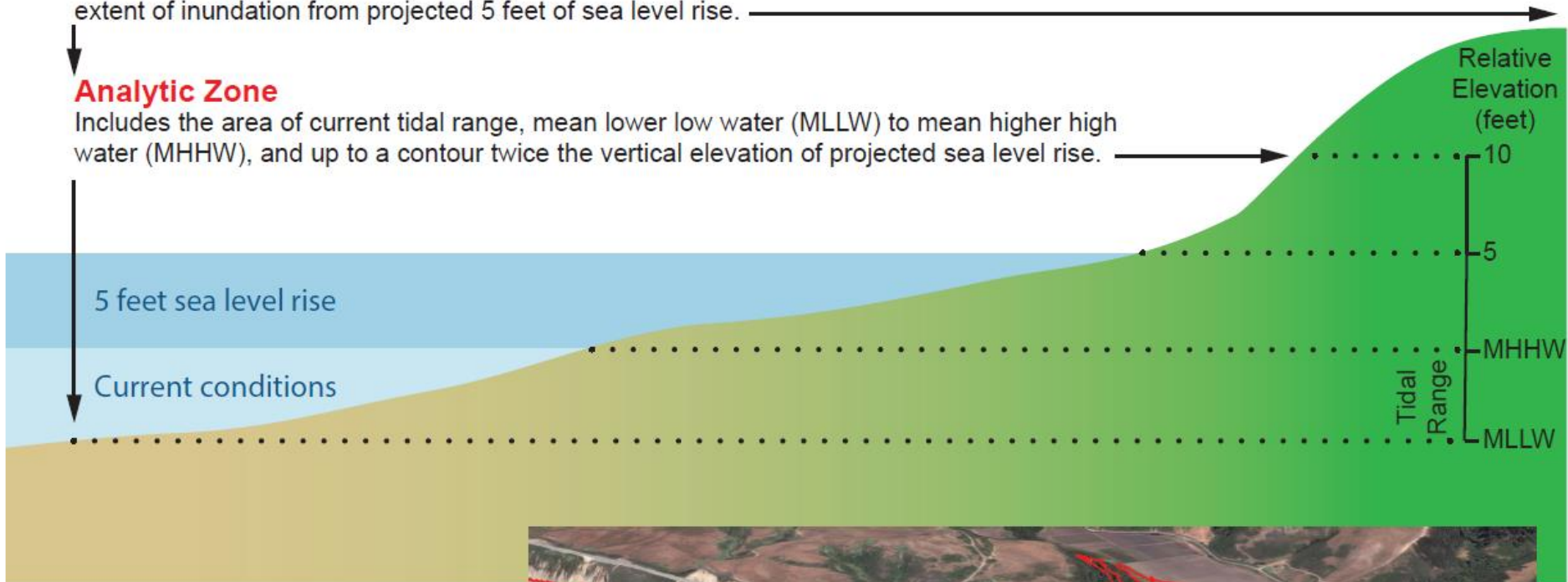


Study Area

Includes analytic zone, extends 5 miles inland from farthest extent of inundation from projected 5 feet of sea level rise.

Analytic Zone

Includes the area of current tidal range, mean lower low water (MLLW) to mean higher high water (MHHW), and up to a contour twice the vertical elevation of projected sea level rise.



Analytic zone on the ground

This image from Santa Cruz County shows how the analytic zone lies on the ground (red polygon). The area inside the analytic zone represents a realistic zone of influence for sea level rise. Differences in slope and topography determine the area of the analytic zone as it follows an elevation contour five vertical feet above projected sea level rise. Image © DigitalGlobe

